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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 09/649,474  | 08/28/2000  | Chih-Yuan Chang      | LUCENT-01300        | 8421             |
| 28960   | 7590        | 11/20/2003           | EXAMINER            |                  |
| HAVERSTOCK & OWENS LLP<br>162 NORTH WOLFE ROAD<br>SUNNYVALE, CA 94086 |             |                      | LIN, KENNY S        |                  |
|   |             |                      | ART UNIT            | PAPER NUMBER     |
|   |             |                      | 2154                |                  |
| DATE MAILED: 11/20/2003   |             |                      |                     |                  |

Please find below and/or attached an Office communication concerning this application or proceeding.

| <b>Office Action Summary</b> | Application No. | Applicant(s) |
|------------------------------|-----------------|--------------|
|                              | 09/649,474      | CHANG ET AL. |
| Examiner                     | Art Unit        |              |
| Kenny Lin                    | 2154            |              |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on 25 August 2003.

2a)  This action is **FINAL**.                            2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## **Disposition of Claims**

4)  Claim(s) 1-39 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5)  Claim(s) \_\_\_\_\_ is/are allowed.  
6)  Claim(s) 1-39 is/are rejected.  
7)  Claim(s) \_\_\_\_\_ is/are objected to.  
8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All b)  Some \* c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.

13)  Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a)  The translation of the foreign language provisional application has been received.

14)  Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

1)  Notice of References Cited (PTO-892) 4)  Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948) 5)  Notice of Informal Patent Application (PTO-152)  
3)  Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3, 4 . 6)  Other: \_\_\_\_\_

## DETAILED ACTION

1. Claims 1-39 are presented for examination.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 11-13, 24-26, 35 and 37-39 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- a. The following claim language renders the claim indefinite.
  - i. Claims 12, 25 and 38 – “another collision” and “again split” (i.e., the claims on which claims 12, 25 or 38 depend on do not introduce a first collision nor a split in subgroup. Hence, the use of “another” and “again” render the claim indefinite).
- b. The following terms ~~lack~~ proper antecedence basis:
  - i. The subgroup x – claim 11, line 2; claim 24, line 2; claim 37, line 2;
  - ii. The parent group – claim 11, line 3; claim 24, line 3; claim 37, line 3;
  - iii. The subgroup – claim 12, line 2; claim 25, line 2; claims 38, line 2;
  - iv. The multiple access cycle – claim 13, line 2; claim 26, line 2; claim 39, line 2;
  - v. The seamless transition – claim 35, line 1.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

5. Claims 1, 14 and 27 rejected under 35 U.S.C. 102(e) as being anticipated by Hulyalkar et al (hereinafter Hulyalkar), US 6,198,728.

6. As per claim 1, Hulyalkar taught the invention as claimed including a method of coordinating slotted multiple access in a wireless network channel shared by a plurality of users comprising the steps of utilizing a polling mode, utilizing a contention mode and utilizing a seamless transition between the polling and contention modes to coordinate user transmission (col.2, lines 57-67, col.6, lines 61-65, col.7, lines 10-47).

7. As per claim 14, Hulyalkar taught the invention as claimed including an apparatus for coordinating slotted multiple access in a wireless network channel shared by a plurality of users (abstract, col.2, lines 57-67) comprising:

- a. Means for implementing a polling mode to facilitate user transmission when there is one user in every subgroup (col.6, lines 62-65, col.7, lines 24-30);
- b. Means for implementing a contention mode to facilitate user transmission when there are no subgroups (col.7, lines 33-40); and
- c. Means for providing a seamless transition between the polling and contention modes to coordinate user transmission (col.6, lines 61-63, col.7, lines 10-23, 44-47).

8. As per claim 27, Hulyalkar taught the invention as claimed including an apparatus for coordinating slotted multiple access in a wireless network channel shared by a plurality of users (abstract, col.2, lines 57-67) comprising:

- a. An ATM cube for operating a high speed wireless network consisting of a plurality of horizontal and vertical management layers (fig.2, col.4, lines 64-67, col.5, lines 1-26, it is inherent to operate network using ATM cube consisting of plurality of layers);
- b. A hub for transmitting and receiving wireless network signals such that the hub may receive requests and assign portions of a communication bandwidth (col.4, lines 33-46, col.7, lines 10-23); and

c. A plurality of end user nodes for transmitting and receiving wireless network signals such that a plurality of users may request or be granted a portion of the communication bandwidth (col.3, lines 52-59, col.4, lines 33-46, col.7, lines 10-23).

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 2-9, 15-22 and 28-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hulyalkar in view of Brophy et al (hereinafter Brophy), US 4,071,908.

11. As per claims 2, 15 and 28, Hulyalkar taught the invention substantially as claimed in claims 1, 14 and 27. Hulyalkar did not specifically teach to assign address from an address pool. Brophy taught to polling method where each of a plurality of users is initially assigned a distinct address from an address pool (col.1, lines 60-67, col.2, lines 1-2, 43-46). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the Hulyalkar and Brophy's teachings since the operations of polling and contention modes requires the user nodes to first be assigned with addresses.

12. As per claims 3, 16 and 29, Hulyalkar and Brophy taught the invention substantially as claimed in claims 2, 15 and 28. Brophy further taught that the address pool contains  $2^k$  addresses, the maximum number of users within one channel (col.3, lines 54-56).

13. As per claims 4, 17 and 30, Hulyalkar and Brophy taught the invention substantially as claimed in claims 2, 15 and 28. Brophy further taught dynamically splitting the address pool into  $2^x$  subgroups (col.2, lines 46-53, col.3, lines 54-56).

14. As per claims 5, 18 and 31, Hulyalkar and Brophy taught the invention substantially as claimed in claims 4, 17 and 30. Hulyalkar further taught to transmit only the users belonging to a specific subgroup at any transmission opportunity (col.7, lines 13-18)

15. As per claims 6, 19 and 32, Hulyalkar and Brophy taught the invention substantially as claimed in claims 5, 18 and 31. Brophy further taught that starting of a multiple access cycle where x could be any number from 0 to k (col.3, lines 54-56).

16. As per claims 7, 20 and 33, Hulyalkar and Brophy taught the invention substantially as claimed in claims 6, 19 and 32. Hulyalkar and Brophy did not specifically teach that the contention mode occurs when  $x=0$  and only one subgroup exists allowing every user to transmit. However, it would have been obvious to us contention mode to transmit when there is only one group of users. It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ a non-polling approach such as contention mode in Hulyalkar and

Brophy's method since there exists only one group of users for transmission (Hulyalkar, col.7, lines 33-35).

17. As per claims 8, 21 and 34, Hulyalkar and Brophy taught the invention substantially as claimed in claims 6, 19 and 32. Brophy further taught that the polling mode occurs when  $x=k$  and there are  $2^k$  subgroups containing only one user (col.3, lines 41-44, 54-56).

18. As per claims 9, 22 and 35, Hulyalkar and Brophy taught the invention substantially as claimed in claims 6, 19 and 32. Hulyalkar and Brophy did not specifically teach that the seamless transition between the polling mode and the contention mode occurs by changing the  $x$  parameter. However, it would have been obvious to transit between the modes depending on the number of subgroups there are for transmission. It would have been obvious to one of ordinary skill in the art at the time the invention was made to perform transition by changing  $x$  parameter where it determines the number of subgroups in Hulyalkar and Brophy's method.

19. Claims 10-13, 23-26 and 36-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hulyalkar as applied to claims 1, 14 and 27 above, and further in view of Lee, US 5,892,769.

20. As per claims 10, 23 and 36, Hulyalkar taught the invention substantially as claimed in claims 1, 14 and 27. Hulyalkar did not specifically teach to applying a contention resolution algorithm when a user signal collides with another. However, Hulyalkar taught to provide

resolution when collisions happened (col.2, lines 42-56, col.7, lines 41-47). Lee taught to use a contention resolution algorithm to resolve collisions (abstract). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Hulyalkar and Lee because Lee's teaching of using a contention resolution algorithm to resolve signal collisions help to ensure that the transmitted packet is received in Hulyalkar's method.

21. As per claims 11, 24 and 37, Hulyalkar and Lee taught the invention substantially as claimed in claims 10, 23 and 36. Lee further taught that when a collision occurs between two users the subgroup x will be split into two subgroups ( $x=x+1$ ), both subgroups containing half the number of users in the parent groups (col.2, lines 30-40).

22. As per claims 12, 25 and 38, Hulyalkar and Lee taught the invention substantially as claimed in claims 10, 23 and 36. Lee further taught that when another collision between two user signals occurs, the subgroup will again split (col.2, lines 30-47).

23. As per claims 13, 26 and 39, Hulyalkar and Lee taught the invention substantially as claimed in claims 10, 23 and 36. Lee further taught that when collisions no longer occur in any subgroup, the multiple access cycle ends and a new cycle begins (col.2, lines 30-49).

24. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Heide, US 5,677,909.

Barach et al, US 6,470,013.

Stacey et al, US 6,434,154.

O'Neill et al, US 6,243,382.

Leung et al, US 5,982,742.

Ruszezyk et al, US 5,615,212.

Hulyalkar et al, US 5,787,080.

Song, US 6,621,821.

Cohn et al, US 4,556,960.

Acampora et al, A New Adaptive MAC Layer Protocol for Broadband Packet Wireless Networks in Harsh Fading and Interference Environments, IEEE, Vol.8, No.3, June 2000, pages 328-336.

Sfikas et al, ATM Cell Transmission Over the IEEE 802.11 Wireless MAC Protocol, IEEE, 1996, page 173- 177.

Prycker et al, B-ISDN and the OSI Protocol Reference Model, IEEE, March 1993, pages 10-18.

25. A shortened statutory period for reply to this Office action is set to expire THREE MONTHS from the mailing date of this action.

26. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenny Lin whose telephone number is (703)305-0438. The examiner can normally be reached on 8 AM to 5 PM Tuesday to Friday and every other Monday.

Art Unit: 2154

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (703)305-9678. Additionally, the fax numbers for Group 2100 are as follows:

Official Responses: (703) 872-9306

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-6121.

ksl  
November 13, 2003



MENG-AL T. AN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2100